

Introduction

VariOS 303 is a trial application that transforms your VariOS into a completely different sound module. When the VariOS 303 program is installed, you can use the VariOS as an analog modeling bass synthesizer. In addition to parameters such as cutoff and resonance, a Pattern Sequencer function is also provided.

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About this program

File structure

- VariOS 303 main program
If this program is installed in the VariOS's internal flash ROM, the VariOS can function as an analog modeling bass synthesizer.
- VariOS 303 controller software (Windows/Macintosh)
This is editor software that lets you control the functions of the VariOS 303 from your computer.

Features

Once you have installed the program into the internal flash ROM of the VariOS, you can use a simple button operation to start up the VariOS as the VariOS 303. Since the previous program will still remain, the normal power-on operation will start up the VariOS with its conventional functionality.

Specifications/System requirements

Specifications

VariOS 303

Sound Generator:

Analog Modeling

Waveforms:

Saw

Square

Parts:

1

Maximum Polyphony:

1 voice

Patches:

128

Step Sequencer:

16 Steps

Effects:

COMP

OD/DS

CHORUS

DELAY

EQ

Sampling Frequency:

44.1kHz

System requirements (Windows)

Operating system:

Microsoft® Windows® XP Home/XP Professional/
2000 Professional/Me/98SE

CPU:

Pentium®/Celeron™ or compatible processor,
400 MHz or better

Pentium® III 500 MHz or better is recommended

RAM:

128 MB or more (256 MB or more is recommended)

Free space required on hard disk:

30 MB or more

Display resolution/Color depth:

800 x 600 pixels, 65,536 colors (16-bit High Color) or
better

System requirements (Macintosh)

Operating System:

Mac OS 9.0.4 or later

Mac OS X v10.2 or later

CPU:

OS 9: PowerPC G3, 233 MHz or better

OS X: PowerPC G3, 500 MHz or better

RAM:

192 MB or more (256 MB or more is recommended)

Free space required on hard disk:

30 MB or more

Display resolution/color depth:

800x 600 pixels, 32,000 colors or better

Other:

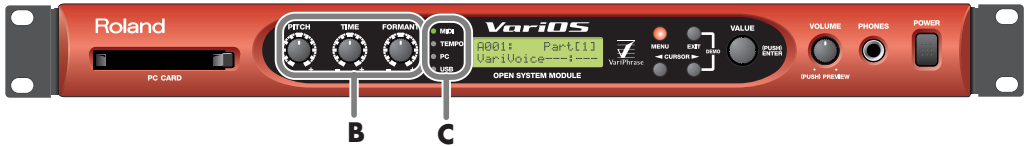
OMS support (Mac OS 9 only)

* Although Roland has tested numerous configurations, and has determined that on average, a computer system similar to that described above will permit normal operation of the VariOS 303 Controller, Roland cannot guarantee that a given computer can be used satisfactorily with the VariOS 303 Controller based solely on the fact that it meets the above requirements. This is because there are too many other variables that may influence the processing environment, including differences in motherboard design and the particular combination of other devices involved.

Names of Things and What They Do

Refer to "Names of Things and What They Do" in the "VariOS User Guide." **The following points will be different when you use VariOS 303.**

Front Panel



B. PITCH/TIME/FORMANT Knobs

| | |
|--------------------------|-------------------------------|
| PITCH (C1) Knob | Adjusts the TUNING (pitch). |
| TIME (C2) Knob | Adjusts the cutoff frequency. |
| FORMANT (C3) Knob | Adjusts the resonance. |

C. Indicators

| | |
|--------------|--|
| TEMPO | This does not function for VariOS 303. |
|--------------|--|

Rear Panel



Q. INPUT

| | |
|-----------------------|--|
| AUDIO IN Jacks | This does not function for VariOS 303. |
| LEVEL Knob | This does not function for VariOS 303. |
| GAIN switch | This does not function for VariOS 303. |

R. OUTPUT

| | |
|-------------------------|--|
| DIRECT OUT Jacks | This does not function for VariOS 303. |
|-------------------------|--|

Installation

Before you begin installation

Before you begin, you must install the driver as described in the "Installation" chapter of the "VariOS User Guide."

If you are using Mac OS 9, install OMS and make settings.



You cannot install the VariOS 303 main program if the driver has not been installed.

Installing the VariOS 303 main program

1. Hold down the three buttons **[MENU]**, **[<CURSOR]**, and **[VOLUME]** of the VariOS, and turn on the power of it.



2. Connect your computer and the VariOS via a USB cable. The internal flash ROM of the VariOS will be detected by your computer as a drive, and will be mounted under the drive name shown in the following table.

| | |
|------------------------|----------------|
| Windows XP | VARIOSFLASH |
| Other Windows versions | Removable Disk |
| Mac OS | VARIOSFLASH |

3. From the **VariOS Program** folder, copy the following files to the VariOS drive that was mounted in step 2.
 - VPD-02 for VariOS
 - VB.prj
4. Unmount the VariOS drive that is mounted on your computer.
 - **Windows:**
In the task tray, double-click the **eject** icon. Then click the item that indicates the VariOS drive (this will differ depending on your version of Windows; see below) to unmount the drive.



| | |
|------------------|----------------------------------|
| Windows XP, 2000 | USB high-capacity storage device |
| Windows Me | USB disk |

- **Macintosh:**
Drag the **VARIOSFLASH** on the desktop into the "Trash".
5. Turn off the power of the VariOS.

Installing VariOS 303 Controller

Windows

In the **Controller Program** folder, double-click **Setup** to start up the installer.
Proceed with the installation according to the on-screen directions.

Macintosh

In the **Controller Program** folder, double-click **VariOS303 Installer_E** to start up the installer.
Proceed with the installation according to the on-screen directions.

Startup and settings

Starting up VariOS 303



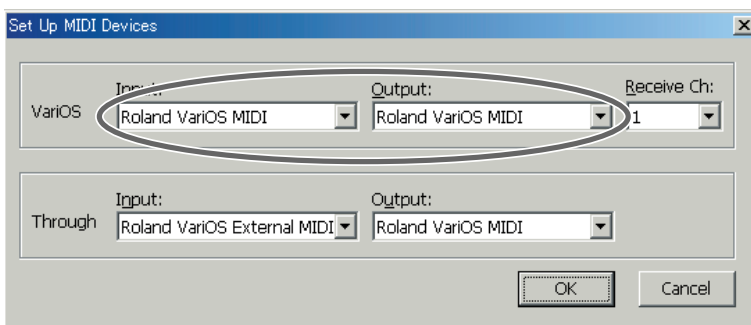
1. Hold down the **[Menu]** and **[<CURSOR]** buttons of the VariOS, and turn on the power.
2. Use the VariOS's **[VALUE]** knob to select "VPD-02."
3. Press **[ENTER]** ([VALUE] knob).

Starting up VariOS 303 Controller and making settings

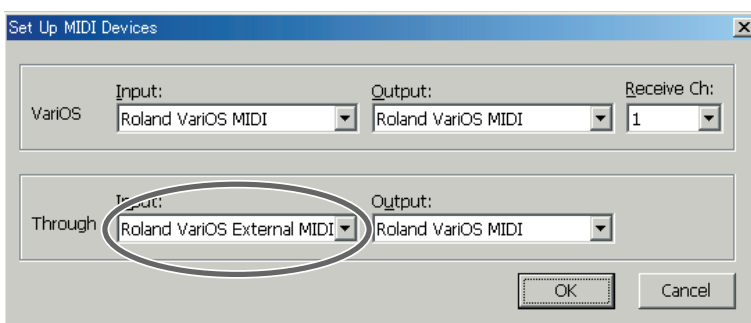
Before you start up VariOS 303 Controller, you must connect the VariOS to your computer via a USB cable and start up VariOS 303.

If you first start up VariOS 303 Controller and then start up VariOS 303 or connect the USB cable, or if you have turned off the power of the VariOS or disconnected the USB cable while VariOS 303 Controller is running, you must close VariOS 303 Controller and then restart it.

1. Start up VariOS 303 Controller.
2. In the **Setup** menu, click **Setup MIDI Devices**.
3. In the **VariOS Input/Output** field, specify the MIDI port to which the VariOS is connected. Normally, you will select "**Roland VariOS MIDI**," as shown in the diagram.

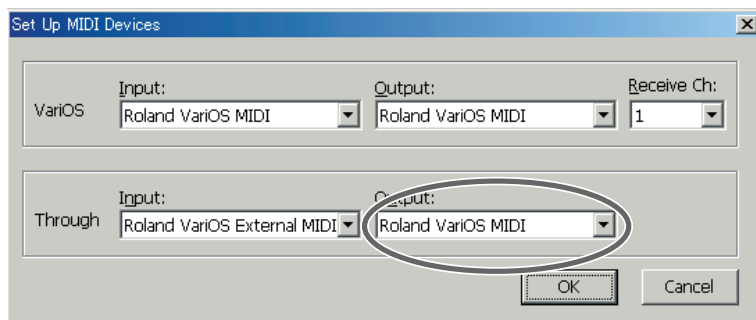


4. If you are using a MIDI keyboard, set the **Through Input** field to the MIDI input port to which your MIDI keyboard is connected. If your MIDI keyboard is connected to the VariOS, select "**Roland VariOS External MIDI**" as shown in the diagram.

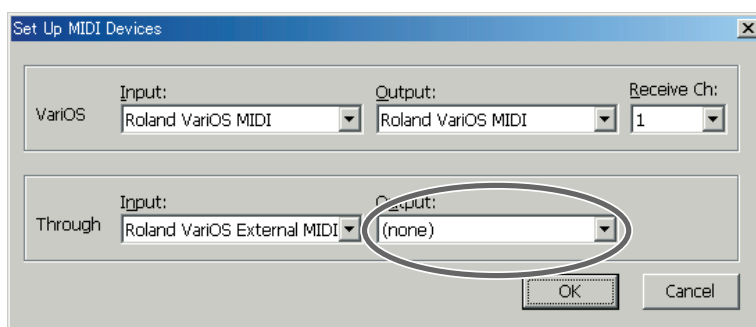


Startup and settings

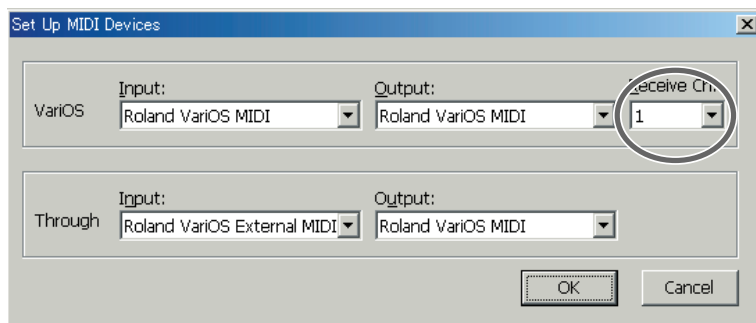
5. If you're using VariOS 303 by itself, set the **Through Output** field to "Roland VariOS MIDI."



If you are using VariOS 303 with other sequencer software, set the **Through Output** field to "none" to prevent VariOS 303 from sounding notes in duplicate.



6. The **Receive Ch** field specifies VariOS 303's MIDI receive channel. VariOS 303 will receive note-on and control change messages on the channel you specify here. If you've connected a MIDI keyboard, set this channel to match the channel your MIDI keyboard is using for transmission.



* The setting of the **Receive Ch** field is linked with the **[Menu2 Receive Channel]** setting of the VariOS hardware module. Refer to "**Setting the MIDI Receive Channel**" on p. 8.

Basic operation

Basic operation for VariOS 303 (main unit)

Selecting patches

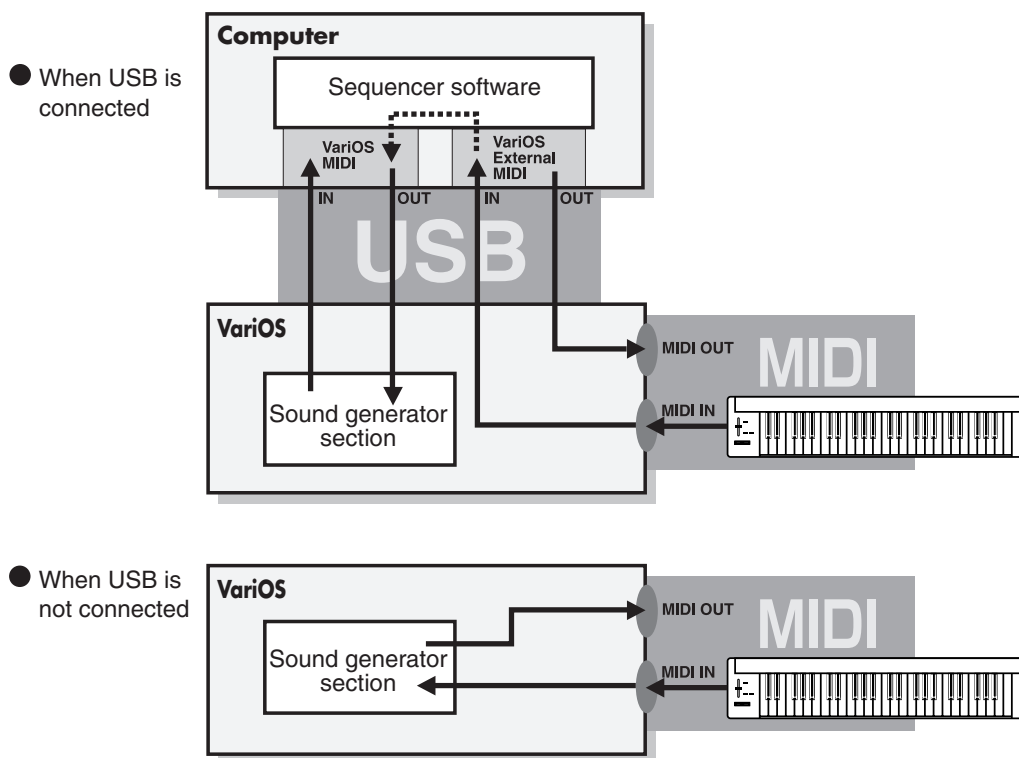
Turn the [VALUE] knob to select patches.

Playing from a connected keyboard (MIDI Mode)

You can connect your MIDI keyboard to the VariOS. In this case, you can change the MIDI routing (PC mode, Internal mode) in the following ways.

PC mode

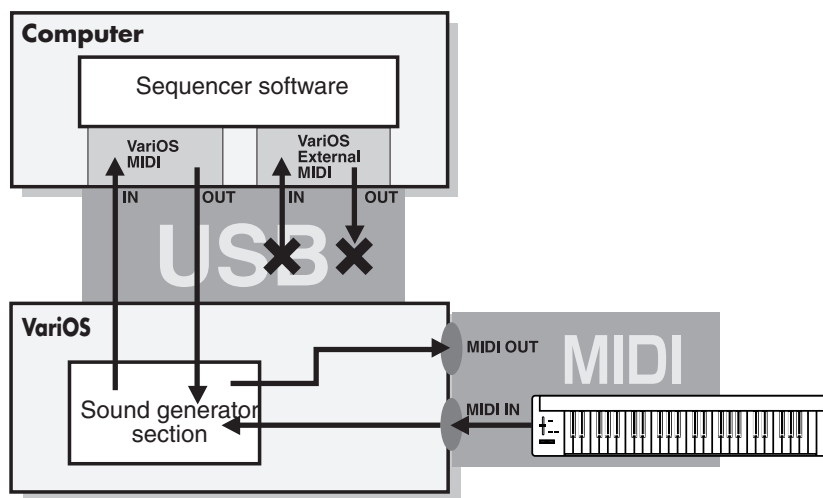
When using a USB connection, the MIDI connectors on the rear panel of the VariOS will function as a USB MIDI interface (Roland VariOS External MIDI). When USB is not connected or when your computer is not powered up, the MIDI connectors on the rear panel of the VariOS are connected directly to the sound generator section.



Basic operation

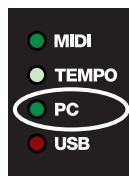
Internal mode

The MIDI connectors of the rear panel of the VariOS are connected directly to the sound generator section.



Procedure:

1. Press the **[MENU]** button so it is lit.
2. Turn the **[VALUE]** knob to select “Menu1 MIDI Mode,” and press the **[VALUE]** knob.
3. Turn the **[VALUE]** knob to switch the setting between “Internal” or “PC.”



The “PC indicator” on the front panel of the VariOS shows the current MIDI Mode status. When this is lit, “PC” mode is selected. When dark, “Internal” mode is selected.

4. Press the **[MENU]** button so it is not lit.

Setting the MIDI Receive Channel

Here’s how to set the MIDI receive channel of the VariOS hardware module.

The VariOS will receive note-on and control change messages on the channel you specify here. If you’ve connected a MIDI keyboard, set this channel to match the transmit channel of your MIDI keyboard.

Procedure:

1. Press the **[MENU]** button so it is lighted.
2. Turn the **[VALUE]** knob to select **[Menu2 Receive Channel]**, and then press the **[VALUE]** knob.
3. Turn the **[VALUE]** knob to specify the receive channel (1–16).
4. Press the **[MENU]** button to turn off its illumination.

Basic operation for VariOS 303 Controller

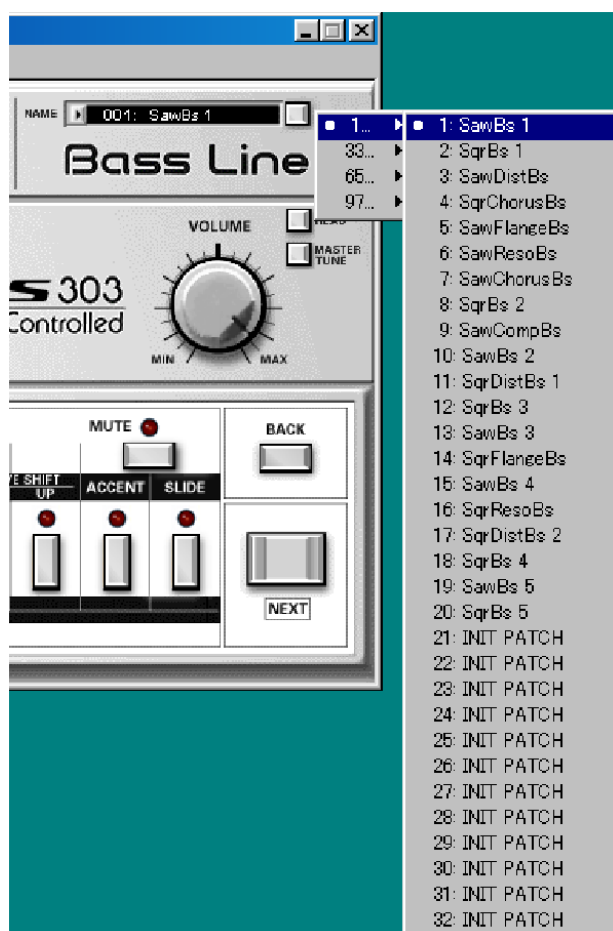
Changing Skins

You can change the appearance of VariOS 303 by choosing **[Skin]** from the **[Setup]** menu.



Selecting a patch

To select a patch from a list, click the **[LIST]** button.



Editing a value

You can edit values by clicking (and dragging) buttons, sliders, or knobs. If you feel that the panel sliders or knobs are too small for you to make detailed adjustments comfortably, try clicking (and holding) a knob and dragging the mouse farther away. You can set the value from any position as long as you continue holding down the mouse button. When doing so, the value can be adjusted with correspondingly greater precision as the mouse cursor is moved further away from the center of the knob.

If the value is displayed, you can also edit it by pressing your computer's cursor keys (up/down).

Basic operation

Initializing a value

You can reset a parameter to its initial value by holding down the Ctrl (control) key of your computer and clicking the slider or knob.

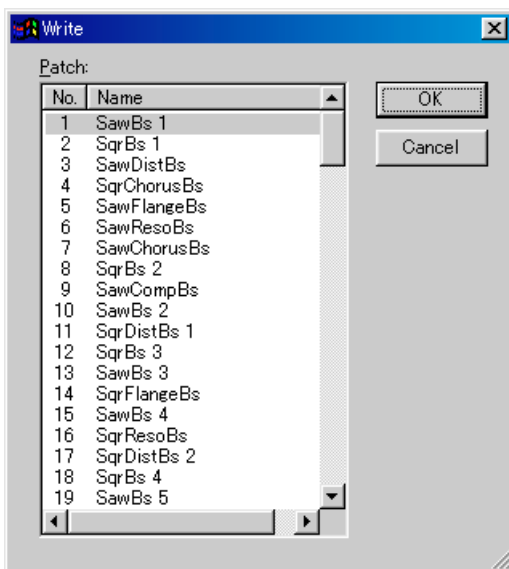
Renaming a patch

To rename a patch, click the **[NAME]** button.



Writing a patch

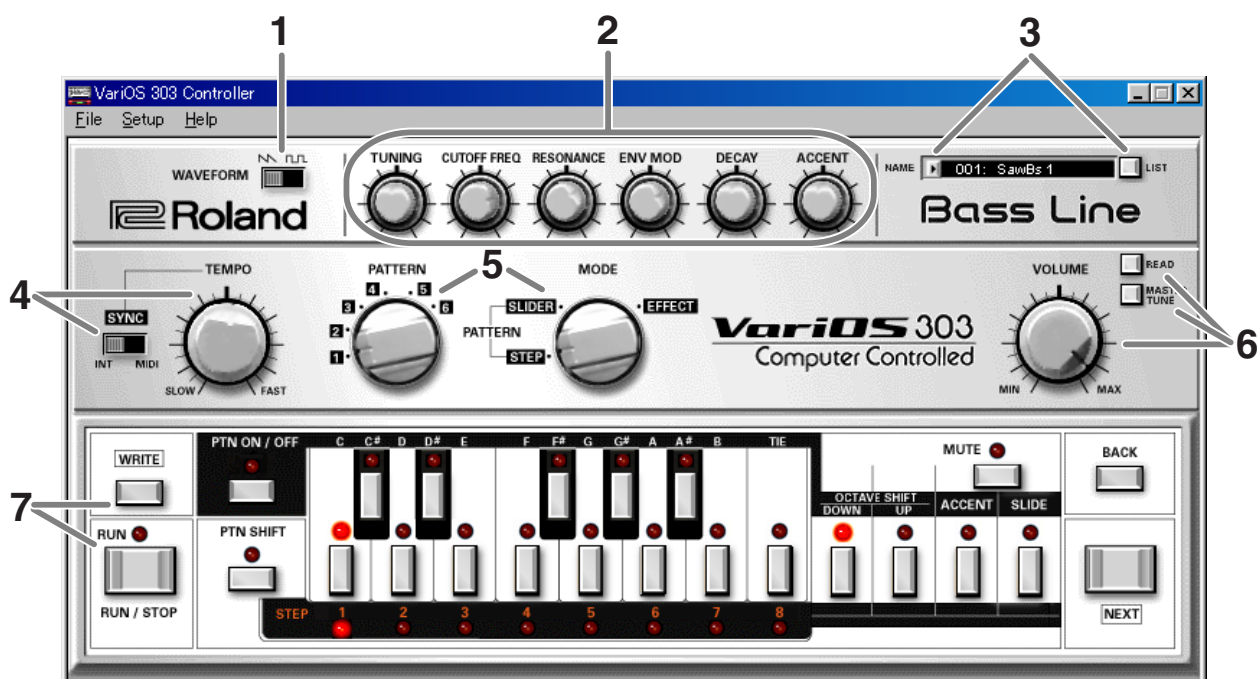
Click the **[WRITE]** button to open the **Write** dialog box. Select the write-destination patch number, and click the OK button.




Patches will be saved in the VariOS itself.

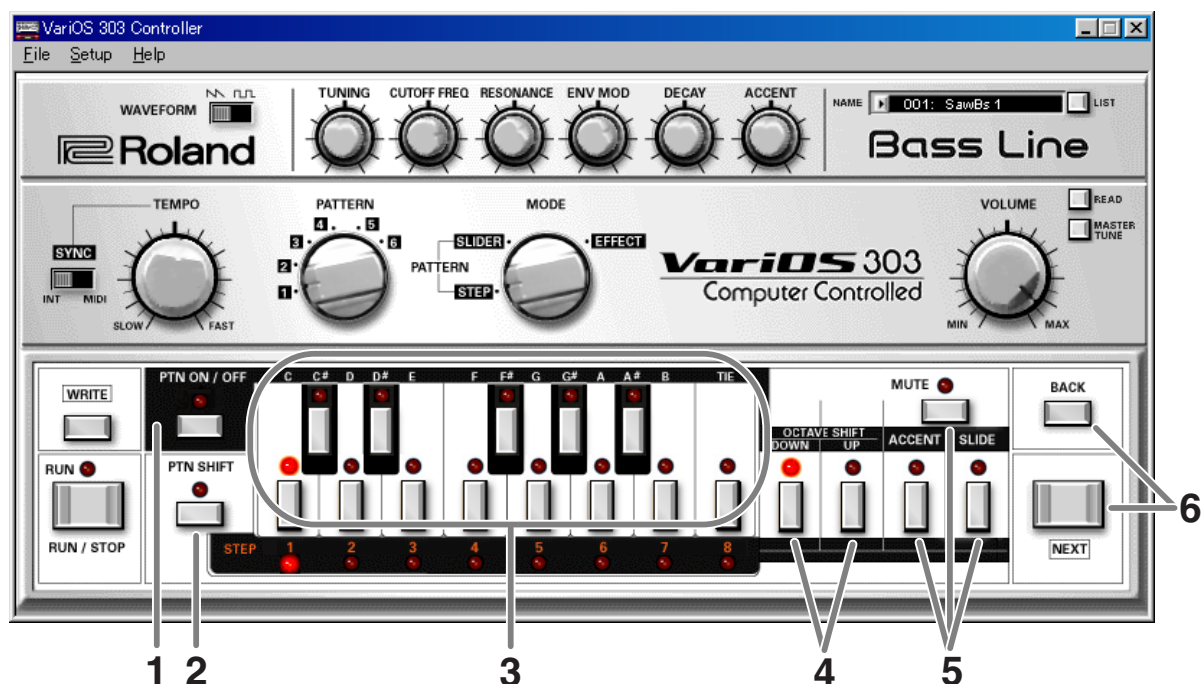
Screen reference

Main screen



| Parameter | Value | Description |
|-------------|----------------------|--|
| 1 WAVEFORM | SAW, SQR | Switches between the two audio source waveforms. SAW: Sawtooth wave SQR: Square wave |
| 2 TUNING | -63+63 | Adjusts the pitch in a range of one octave up or down. |
| CUTOFF FREQ | 0-127 | Sets the cutoff frequency of the filter. |
| RESONANCE | 0-127 | Sets the resonance. |
| ENV MOD | 0-127 | Specifies the depth of the envelope. Higher settings will cause the envelope to produce greater change. |
| DECAY | 0-127 | Specifies the decay time of the envelope (the time from when the envelope level reaches the maximum value until it falls to a constant value). |
| ACCENT | 0-127 | Adjusts the strength of the accent programmed into the bass pattern. |
| 3 NAME | — | Refer to p. 10. |
| LIST | — | Refer to p. 9. |
| 4 SYNC | INT, MIDI | Determines the clock to which the pattern tempo is to be synchronized. INT: Synchronize to the patch tempo. MIDI: Synchronize to the clock of the external sequencer. (Refer to p. 16) |
| TEMPO | 20-250 | Sets the tempo of the pattern. |
| 5 PATTERN | 1-6 | Six patterns can be stored for each patch. |
| MODE | STEP, SLIDER, EFFECT | Switches the edit screens. |
| 6 VOLUME | 0-127 | Adjusts the volume. |
| READ | — | Loads settings from the VariOS 303 into VariOS 303 controller so that the Controller screen matches the settings of the unit itself. |
| MASTER TUNE | 415.3-466.2 Hz | Click MASTER TUNE to display the Tune dialog box.  Adjusts the overall tuning. The display of 440 Hz shows the frequency of the A4 note (center A). |
| 7 WRITE | — | Saves the patch. |
| RUN/STOP | — | Plays/stops the pattern. |

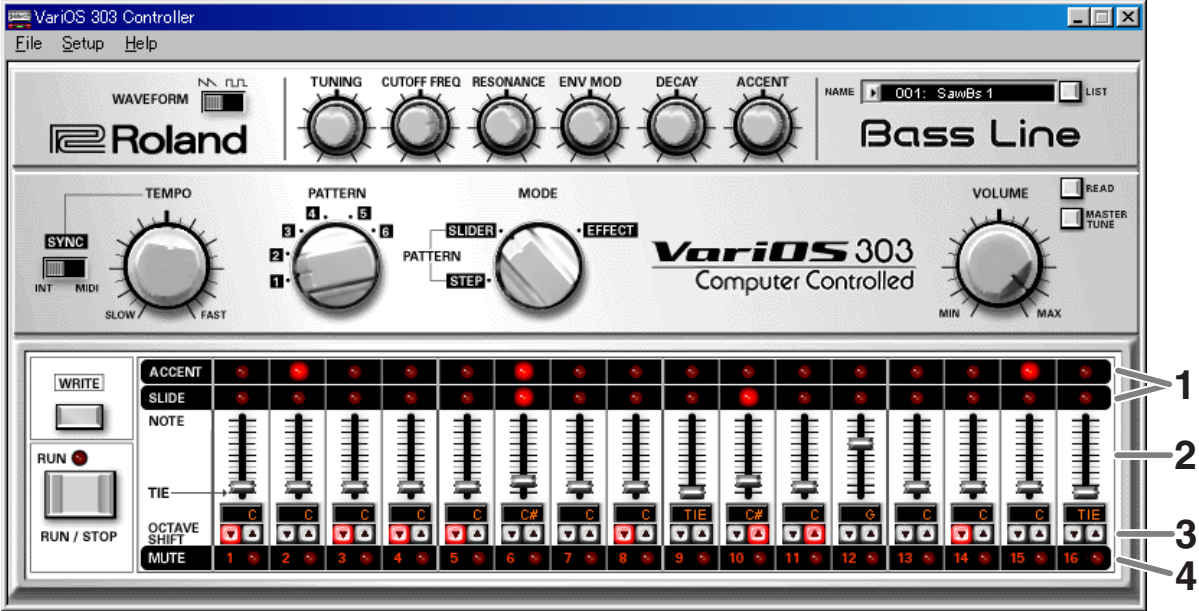
Step Pattern Input screen



A pattern consists of sixteen steps. In this screen you can input data for each step.

| Parameter | Description |
|---------------------|--|
| 1 PTN ON/OFF | Note-on messages from an external MIDI keyboard can be used to play patterns. Note-off messages will stop the playback. |
| 2 PTN SHIFT | Shifts the key (transposes the pitch) of the phrase you programmed for the pattern. This setting is relative to C4. The pitch will be shifted by the distance between C4 and the key you play on your external MIDI keyboard. <i>* A shift is not obtained simply by clicking a C-B button. You must use an external MIDI keyboard.</i> |
| 3 C-B, TIE | These input notes. C-B: Specify the pitch. TIE: Extend the length of the note of the preceding step into the current step. |
| 4 OCTAVE SHIFT DOWN | Lowens the note pitch by one octave. |
| OCTAVE SHIFT UP | Raises the note pitch by one octave. |
| 5 ACCENT | Switches the accent (p. 11) on/off. |
| SLIDE | If this is on, the pitch will change smoothly between the preceding note and the current note. |
| MUTE | If this is on, the sound will be muted (silenced). |
| 6 BACK | Moves backward one step. The STEP indication will move by -1. |
| NEXT | Moves forward by one step. The STEP indication will move by +1. |

Slider Pattern Input screen



A pattern consists of sixteen steps. In this screen you can input all sixteen steps simultaneously.

| | Parameter | Description |
|---|-------------------|--|
| 1 | ACCENT | Switches the accent (p. 11) on/off. |
| | SLIDE | If this is on, the pitch will change smoothly between the preceding note and the current note. |
| 2 | NOTE, TIE | These input notes. C-B: Specify the pitch. TIE: Extend the length of the note of the preceding step into the current step. |
| | OCTAVE SHIFT DOWN | Lowers the note pitch by one octave. |
| 3 | OCTAVE SHIFT UP | Raises the note pitch by one octave. |
| | MUTE | If this is on, the sound will be muted (silenced). |

Effect screen

Bass Multi provides Comp/Limiter, Overdrive or Distortion, 3-band equalizer, Chorus or Flanger, and Delay effects connected in series. This algorithm is a multi-effects for bass.



1. COMP

| Parameter | Value | Description |
|-----------|------------------------|--|
| COMP | OFF, ON | Turns the comp/limiter on/off. |
| RATIO | 1.5:1, 2:1, 4:1, 100:1 | Sets the “source sound:output sound” compression ratio. |
| GAIN | -60– +12 dB | Adjusts the output gain. |
| THRES | -60–0 dB | Sets the volume level at which the compression begins. |
| ATTACK | 0–127 | Sets the time after the sound volume is crossed the value of THRES until compression begins. |
| RELEASE | 0–127 | Specifies the time from when the volume drops below the value of THRES until compression is no longer applied. |

2. OD/DS

| Parameter | Value | Description |
|------------|---------|---|
| OD/DS | OFF, ON | Selects whether to use overdrive or distortion. |
| DRIVE MODE | OD, DS | Selects whether to use overdrive (OD) or distortion (DS). |
| DRIVE | 0–127 | Degree of distortion |

3. EQUALIZER

| Parameter | Value | Description |
|-----------|---------------|-------------------------------|
| LOW FREQ | 50–4000 Hz | Frequency of the low range |
| MID FREQ | 50–20000 Hz | Frequency of the middle range |
| HIGH FREQ | 2000–20000 Hz | Frequency of the high range |
| LOW GAIN | -15– +15 dB | Gain of the low range |
| MID GAIN | -15– +15 dB | Gain of the middle range |
| HIGH GAIN | -15– +15 dB | Gain of the high range |

4. CHORUS

| Parameter | Value | Description |
|-------------|--------------|---|
| CHORUS MODE | CHO, FLNG | Selects whether to use chorus or flanger. |
| RATE | 0.05–10.0 Hz | Adjusts the speed of modulation for the chorus or flanger. |
| MOD LEVEL | 0–127 | Volume of the chorus or flanger sound. |
| DEPTH | 0–127 | Adjusts the depth of modulation for the chorus or flanger. |
| FEEDBACK | -98– +98 % | Adjusts the proportion of the effect sound that is fed back into the effect. Negative (-) settings will invert the phase. |

5. DELAY

This is a stereo delay. Depending on the length of the delay you set, you can get long echoes, thick sounds, or spatial sounds.

| Parameter | Value | Description |
|-----------|-------------------------|--|
| DELAY | OFF, ON | Switches the delay on/off. |
| TIME | 0–1300 ms | Adjusts the delay time from the direct sound until the delay sound is heard. |
| BALANCE | DRY100:0WET–DRY0:100WET | Volume balance between the direct sound (DRY) and the delay sound (WET) |
| LEVEL | 0–127 | Adjusts the amount of delay. |
| FEEDBACK | -98– +98 % | Adjusts the proportion of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase. |

Cautions when using VariOS 303 with another sequencer

Synchronizing the step sequencer to the tempo of your MIDI sequencer

If you are using VariOS 303 with your MIDI sequencer, you can set VariOS 303 Controller's **[SYNC]** switch to **MIDI** so that the VariOS 303 step sequencer will be synchronized to the tempo of your MIDI sequencer.

1. Set VariOS 303 Controller's **[SYNC]** switch to **MIDI**. (Refer to p. 11)
2. Start up your MIDI sequencer.
3. Send the MIDI clock of your MIDI sequencer to **“Roland VariOS MIDI”** (the port of the VariOS sound generator section).
4. Specify **Roland VariOS MIDI** (the port of the VariOS sound generator section) as the output port for the tracks of your sequencer, so that it will control the VariOS.

About MIDI channels

When playing VariOS 303 from a sequencer, choose **Roland VariOS MIDI** as the output port for the corresponding track in your sequencer, and set the MIDI output channel to match the MIDI Receive Channel of the VariOS. You can use either of the following two methods to set the VariOS's MIDI Receive Channel.

- **From VariOS 303 Controller**

Refer to step **6** of **“Starting up VariOS 303 Controller and making settings”** on p. 6.

- **From the menu of the VariOS hardware module**

Refer to **“Setting the MIDI Receive Channel”** on p. 8.

Starting up VariOS 303 from a PC card

The VariOS trial applications "VariOS-8" and "VariOS 303" can be copied to a PC card, so that the programs can be started up from a PC card inserted in the VariOS.

This is very convenient, since you can start up a VariOS trial application simply by inserting the PC card into the card slot of the VariOS and turning the power on. (If you have copied more than one trial application onto the PC card, you can use the [VALUE] knob at start-up to switch applications.)



You will need a PC card (sold separately) in order to do this.



If you use a PC card, be sure that it meets the requirements given in "Using PC Cards" (p. 5) of the "VariOS User Guide."



When using a PC card, you must format it on the VariOS itself using the procedure described in the "VariOS User Guide" section "VariOS Menu Reference" -> "8-5 Format."

Installation

If your computer does not have a PC card reader



First use the "Installation" (p. 4) procedure described in this manual to copy **VB.prj** to the internal flash ROM of the VariOS.

1. Make sure that a PC card is not inserted in the PC card slot of the VariOS. Then use a USB cable to connect the VariOS to your computer, and start up the computer.
2. Hold down the [MENU], [<CURSOR], and [ENTER] ([VALUE] knob) buttons of the VariOS, and turn on the power of it.
3. Insert the PC card into the PC card slot of the VariOS.
4. The PC card inserted in the VariOS will be recognized by your computer as a drive, and will be mounted as the drive name shown in the following table.

| | |
|------------------------|----------------|
| Windows 98SE, Me, 2000 | Removable Disk |
| Windows XP, Macintosh | PC CARD |

5. From the **VariOS Program** folder, drag **VPD-02 for VariOS.BIN** to copy it into the PC card drive.
6. Rename the copied file **VPD-02 for VariOS.BIN** as follows. (Change the third character from "D" to "I" (the uppercase letter "I"; not the numeral "one").

VPD-02 for VariOS.BIN



VPI-02 for VariOS.BIN

Starting up VariOS 303 from a PC card

7. Unmount the PC card drive that is mounted on your computer.
- **Windows:**
In the task tray, double-click the **eject** icon. Then click the item that indicates the PC card drive (this will differ depending on your version of Windows; see below) to unmount the drive.



| | |
|------------------|----------------------------------|
| Windows XP, 2000 | USB high-capacity storage device |
| Windows Me | USB disk |

- **Macintosh:**
Drag the **PC CARD** on the desktop into the “Trash”.
** The **PC CARD** you dragged into the Recycle Bin will be mounted again, but this is not a problem.*

8. Turn off the power of the VariOS.
This completes the installation. Refer to "Usage," below.

If your computer has a PC card reader

MEMO

First use the "Installation" (p. 4) procedure described in this manual to copy **VB.prj** to the internal flash ROM of the VariOS.

1. Start up your computer, and insert the PC card into the PC card reader.
2. From the **VariOS Program** folder, drag **VPD-02 for VariOS.BIN** to copy it into the PC card drive.
3. Rename the copied file **VPD-02 for VariOS.BIN** as follows. (Change the third character from "D" to "I" (the uppercase letter "I"; not the numeral "one").

VPD-02 for VariOS.BIN



VPI-02 for VariOS.BIN

4. Unmount the PC card drive that is mounted on your computer.
This completes the installation. Refer to "Usage," below.

Usage

1. When you insert the PC card into the VariOS and power-on the VariOS, the VariOS trial application that was written to the PC card will start up.

MEMO

If you want to start up the internal program of the VariOS, remove the PC card and power-on the VariOS.

2. If you have copied more than one trial application to the PC card, the display will indicate "**Select Program**" when the VariOS starts up. Turn the **[VALUE]** knob to select the desired application, and press **[ENTER]** to start up.

NOTE

If the patch name does not appear (i.e., displayed as "001: "), the VariOS's internal flash ROM does not contain patch data. Copy **VB.prj** into the VariOS's internal flash ROM as described in "Installation" (p. 4).

MIDI Implementation

System Exclusive Message

●Data Transmission

This instrument can use exclusive messages to exchange many varieties of internal settings with other devices.

The model ID of the exclusive messages used by this instrument is 00H 6DH.

○Data Request 1RQ1 (11H)

This message requests the other device to transmit data. The address and size indicate the type and amount of data that is requested.

When a Data Request message is received, if the device is in a state in which it is able to transmit data, and if the address and size are appropriate, the requested data is transmitted as a Data Set 1 (DT1) message. If the conditions are not met, nothing is transmitted.

| Status | data byte | status |
|--------|---|--------|
| F0H | 41H, dev, 00H, 53H, 11H, aaH, bbH, ccH, F7H ddH, ssH, ttH, uuH, vvH, sum | |

| Byte | Remarks |
|------|--------------------------|
| F0H | Exclusive status |
| 41H | ID number (Roland) |
| 10H | device ID |
| 00H | model ID #1 (VariOS 303) |
| 6DH | model ID #2 (VariOS 303) |
| 11H | command ID (RQ1) |
| aaH | address MSB |
| bbH | address |
| ccH | address |
| ddH | address LSB |
| ssH | size MSB |
| ttH | size |
| uuH | size |
| vvH | size LSB |
| sum | checksum |
| F7H | EOX (End Of Exclusive) |

* The size of data that can be transmitted at one time is fixed for each type of data. And data requests must be made with a fixed starting address and size. Refer to the address and size given in "Parameter Address Map."

○Data Set 1 DT1 (12H)

| Status | Data byte | Status |
|--------|--|--------|
| F0H | 41H, dev, 00H, 53H, 12H, aaH, bbH, ccH, ddH, eeH, ... ffH, sum | F7H |

| Byte | Explanation |
|------|--|
| F0H | Exclusive status |
| 41H | ID number (Roland) |
| 10H | Device ID |
| 00H | Model ID #1 (VariOS 303) |
| 6DH | Model ID #2 (VariOS 303) |
| 12H | Command ID (DT1) |
| aaH | Address MSB: upper byte of the starting address of the data to be sent |
| bbH | Address: upper middle byte of the starting address of the data to be sent |
| ccH | Address: lower middle byte of the starting address of the data to be sent |
| sent | |
| ddH | Address LSB: lower byte of the starting address of the data to be sent. |
| eeH | Data: the actual data to be sent. Multiple bytes of data are transmitted in order starting from the address. |
| : | : |
| ffH | Data |
| sum | Checksum |
| F7H | EOX (End Of Exclusive) |

* The amount of data that can be transmitted at one time depends on the type of data, and data will be transmitted from the specified starting address and size. Refer to the address and size given in "Parameter Address Map."

* Data larger than 256 bytes will be divided into packets of 256 bytes or less, and each packet will be sent at an interval of about 20 ms.

Parameter Address Map

* Transmission of "#" marked address is divided to some packets. For example, ABH in hexadecimal notation will be divided to 0AH and 0BH, and is sent/received in this order.

■VariOS 303 (ModelID = 00H 6DH)

| Start Address | Description |
|---------------|------------------|
| 01 00 00 00 | Setup |
| 10 00 00 00 | Temporary Patch |
| 20 00 00 00 | User Patch (001) |
| 20 01 00 00 | User Patch (002) |
| 20 7F 00 00 | User Patch (128) |

○Patch

| Offset Address | Description |
|----------------|-----------------|
| 00 10 00 | Patch Common |
| 00 11 00 | Patch Effect |
| 00 12 00 | Patch Tone |
| 00 13 00 | Patch Pattern 1 |
| 00 14 00 | Patch Pattern 2 |
| 00 15 00 | Patch Pattern 3 |
| 00 16 00 | Patch Pattern 4 |
| 00 17 00 | Patch Pattern 5 |
| 00 18 00 | Patch Pattern 6 |

○Setup

| Offset Address | Description |
|----------------|---|
| 00 00 | 0aaa aaaa Part 1 Bank Select MSB (CC# 0) (0 - 127) |
| 00 01 | 0aaa aaaa Part 1 Bank Select LSB (CC# 32) (0 - 127) |
| 00 02 | 0aaa aaaa Part 1 Program Number (PC) (0 - 127) |
| 00 03 | 0000 aaaa |
| | 0000 bbbb |
| | 0000 cccc |
| | 0000 dddd Master Tune (24 - 2024) |
| | -100.0 - +100.0 [cent] (0 - 1) |
| 00 07 | 0000 000a Clock Source INT, MIDI (0 - 15) |
| 00 08 | 0000 aaaa Receive Channel 1 - 16 |
| 00 00 00 09 | Total Size |

○Patch Common

| Offset Address | Description |
|----------------|---|
| 00 00 | 0aaa aaaa Patch Name 1 (32 - 127) |
| 00 01 | 0aaa aaaa Patch Name 2 (32 - 127) |
| 00 02 | 0aaa aaaa Patch Name 3 (32 - 127) |
| 00 03 | 0aaa aaaa Patch Name 4 (32 - 127) |
| 00 04 | 0aaa aaaa Patch Name 5 (32 - 127) |
| 00 05 | 0aaa aaaa Patch Name 6 (32 - 127) |
| 00 06 | 0aaa aaaa Patch Name 7 (32 - 127) |
| 00 07 | 0aaa aaaa Patch Name 8 (32 - 127) |
| 00 08 | 0aaa aaaa Patch Name 9 (32 - 127) |
| 00 09 | 0aaa aaaa Patch Name 10 (32 - 127) |
| 00 0A | 0aaa aaaa Patch Name 11 (32 - 127) |
| 00 0B | 0aaa aaaa Patch Name 12 (32 - 127) |
| 00 0C | 0aaa aaaa (reserved) (0 - 127) |
| # 00 0D | 0000 aaaa Patch Tempo (20 - 250) |
| | 0000 bbbb 20 - 250 |
| 00 0F | 00aa aaaa Pitch Bend Range Up (0 - 48) |
| 00 10 | 00aa aaaa Pitch Bend Range Down (0 - 48) |
| 00 11 | 0000 000a Delay Switch (0 - 1) |
| | OFF, ON |
| 00 12 | 0000 000a Pattern Status (0 - 2) |
| 00 13 | 0000 0aaa Pattern Select OFF, ON, RUN (0 - 5) |
| 00 14 | 0000 000a Pattern Shift 1 - 6 (0 - 1) |
| 00 15 | 0aaa 0aaa (reserved) OFF, ON (0 - 127) |
| 00 16 | 0aaa aaaa (reserved) (0 - 127) |
| 00 17 | 0aaa aaaa (reserved) (0 - 127) |
| 00 00 00 18 | Total Size |

MIDI Implementation

○Patch Effect

| Offset | Address | Description | |
|-------------|------------|------------------|----------------------------|
| 00 00 | 0aaa aaaa | Delay Send Level | (0 - 127) |
| 00 01 | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 02 | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 03 | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 04 | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 05 | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 06 | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 07 | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 08 | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 09 | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 0A | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 0B | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 0C | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 0D | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 0E | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 0F | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 10 | 0000 000a | Comp Sw | (0 - 1) OFF, ON |
| 00 11 | 0000 00aa | Comp Ratio | (0 - 3) |
| 00 12 | 00aa aaaa | Comp Threshold | (0 - 60) |
| 00 13 | 0aaa aaaa | Comp Attack | (0 - 127) |
| 00 14 | 0aaa aaaa | Comp Release | (0 - 127) |
| 00 15 | 0aaa aaaa | Comp Gain | (0 - 72) |
| 00 16 | 0000 000a | Distortion Sw | (0 - 1) OFF, ON |
| 00 17 | 0000 000a | Distortion Mode | (0 - 1) OD, DS |
| 00 18 | 0aaa aaaa | Drive | (0 - 127) |
| 00 19 | 000a aaaa | EQ Low Freq | (0 - 19) |
| 00 1A | 000a aaaa | EQ Low Gain | (0 - 30) |
| 00 1B | 000a aaaa | EQ Mid Freq | (0 - 26) |
| 00 1C | 000a aaaa | EQ Mid Gain | (0 - 30) |
| 00 1D | 0000 aaaa | EQ High Freq | (0 - 8) |
| 00 1E | 000a aaaa | EQ High Gain | (0 - 30) |
| 00 1F | 0000 000a | Chorus Mode | (0 - 1) CHORUS, FLANGER |
| 00 20 | 0aaa aaaa | Chorus Rate | (0 - 111) |
| 00 21 | 0aaa aaaa | Chorus Depth | (0 - 127) |
| 00 22 | 0aaa aaaa | Chorus Feedbk | (0 - 98) |
| 00 23 | 0aaa aaaa | Chorus Level | (0 - 127) |
| 00 24 | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 25 | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 26 | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 27 | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 28 | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 29 | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 2A | 0aaa aaaa | DELAY Time | (0 - 105) |
| 00 2B | 0aaa aaaa | DELAY Balance | (0 - 100) |
| 00 2C | 0aaa aaaa | DELAY Feedbk | (0 - 98) |
| 00 2D | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 2E | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 2F | 0aaa aaaa | (reserved) | (0 - 127) |
| 00 00 00 30 | Total Size | | |

○Patch Tone

| Offset | Address | Description | |
|-------------|------------|-------------|------------------------|
| 00 00 | 0000 aaaa | Waveform | (0 - 1) SAW, SQUARE |
| 00 01 | 0aaa aaaa | Tuning | (1 - 127) |
| 00 02 | 0aaa aaaa | Cutoff Freq | (0 - 127) |
| 00 03 | 0aaa aaaa | Resonance | (0 - 127) |
| 00 04 | 0aaa aaaa | Env Mod | (0 - 127) |
| 00 05 | 0aaa aaaa | Decay | (0 - 127) |
| 00 06 | 0aaa aaaa | Accent | (0 - 127) |
| 00 07 | 0aaa aaaa | Volume | (0 - 127) |
| 00 00 00 08 | Total Size | | |

○Patch Pattern

| Offset | Address | Description | |
|-------------|------------|----------------|----------|
| 00 00 | 0000 aaaa | Step 1 Note | (0 - 12) |
| 00 01 | 0000 aaaa | Step 2 Note | (0 - 12) |
| 00 02 | 0000 aaaa | Step 3 Note | (0 - 12) |
| 00 03 | 0000 aaaa | Step 4 Note | (0 - 12) |
| 00 04 | 0000 aaaa | Step 5 Note | (0 - 12) |
| 00 05 | 0000 aaaa | Step 6 Note | (0 - 12) |
| 00 06 | 0000 aaaa | Step 7 Note | (0 - 12) |
| 00 07 | 0000 aaaa | Step 8 Note | (0 - 12) |
| 00 08 | 0000 aaaa | Step 9 Note | (0 - 12) |
| 00 09 | 0000 aaaa | Step 10 Note | (0 - 12) |
| 00 0A | 0000 aaaa | Step 11 Note | (0 - 12) |
| 00 0B | 0000 aaaa | Step 12 Note | (0 - 12) |
| 00 0C | 0000 aaaa | Step 13 Note | (0 - 12) |
| 00 0D | 0000 aaaa | Step 14 Note | (0 - 12) |
| 00 0E | 0000 aaaa | Step 15 Note | (0 - 12) |
| 00 0F | 0000 aaaa | Step 16 Note | (0 - 12) |
| 00 10 | 0000 000a | Step 1 Slide | (0 - 1) |
| 00 11 | 0000 000a | Step 2 Slide | (0 - 1) |
| 00 12 | 0000 000a | Step 3 Slide | (0 - 1) |
| 00 13 | 0000 000a | Step 4 Slide | (0 - 1) |
| 00 14 | 0000 000a | Step 5 Slide | (0 - 1) |
| 00 15 | 0000 000a | Step 6 Slide | (0 - 1) |
| 00 16 | 0000 000a | Step 7 Slide | (0 - 1) |
| 00 17 | 0000 000a | Step 8 Slide | (0 - 1) |
| 00 18 | 0000 000a | Step 9 Slide | (0 - 1) |
| 00 19 | 0000 000a | Step 10 Slide | (0 - 1) |
| 00 1A | 0000 000a | Step 11 Slide | (0 - 1) |
| 00 1B | 0000 000a | Step 12 Slide | (0 - 1) |
| 00 1C | 0000 000a | Step 13 Slide | (0 - 1) |
| 00 1D | 0000 000a | Step 14 Slide | (0 - 1) |
| 00 1E | 0000 000a | Step 15 Slide | (0 - 1) |
| 00 1F | 0000 000a | Step 16 Slide | (0 - 1) |
| 00 20 | 0000 00aa | Step 1 Octave | (0 - 2) |
| 00 21 | 0000 00aa | Step 2 Octave | (0 - 2) |
| 00 22 | 0000 00aa | Step 3 Octave | (0 - 2) |
| 00 23 | 0000 00aa | Step 4 Octave | (0 - 2) |
| 00 24 | 0000 00aa | Step 5 Octave | (0 - 2) |
| 00 25 | 0000 00aa | Step 6 Octave | (0 - 2) |
| 00 26 | 0000 00aa | Step 7 Octave | (0 - 2) |
| 00 27 | 0000 00aa | Step 8 Octave | (0 - 2) |
| 00 28 | 0000 00aa | Step 9 Octave | (0 - 2) |
| 00 29 | 0000 00aa | Step 10 Octave | (0 - 2) |
| 00 2A | 0000 00aa | Step 11 Octave | (0 - 2) |
| 00 2B | 0000 00aa | Step 12 Octave | (0 - 2) |
| 00 2C | 0000 00aa | Step 13 Octave | (0 - 2) |
| 00 2D | 0000 00aa | Step 14 Octave | (0 - 2) |
| 00 2E | 0000 00aa | Step 15 Octave | (0 - 2) |
| 00 2F | 0000 00aa | Step 16 Octave | (0 - 2) |
| 00 30 | 0000 000a | Step 1 Accent | (0 - 1) |
| 00 31 | 0000 000a | Step 2 Accent | (0 - 1) |
| 00 32 | 0000 000a | Step 3 Accent | (0 - 1) |
| 00 33 | 0000 000a | Step 4 Accent | (0 - 1) |
| 00 34 | 0000 000a | Step 5 Accent | (0 - 1) |
| 00 35 | 0000 000a | Step 6 Accent | (0 - 1) |
| 00 36 | 0000 000a | Step 7 Accent | (0 - 1) |
| 00 37 | 0000 000a | Step 8 Accent | (0 - 1) |
| 00 38 | 0000 000a | Step 9 Accent | (0 - 1) |
| 00 39 | 0000 000a | Step 10 Accent | (0 - 1) |
| 00 3A | 0000 000a | Step 11 Accent | (0 - 1) |
| 00 3B | 0000 000a | Step 12 Accent | (0 - 1) |
| 00 3C | 0000 000a | Step 13 Accent | (0 - 1) |
| 00 3D | 0000 000a | Step 14 Accent | (0 - 1) |
| 00 3E | 0000 000a | Step 15 Accent | (0 - 1) |
| 00 3F | 0000 000a | Step 16 Accent | (0 - 1) |
| 00 40 | 0000 000a | Step 1 Mute | (0 - 1) |
| 00 41 | 0000 000a | Step 2 Mute | (0 - 1) |
| 00 42 | 0000 000a | Step 3 Mute | (0 - 1) |
| 00 43 | 0000 000a | Step 4 Mute | (0 - 1) |
| 00 44 | 0000 000a | Step 5 Mute | (0 - 1) |
| 00 45 | 0000 000a | Step 6 Mute | (0 - 1) |
| 00 46 | 0000 000a | Step 7 Mute | (0 - 1) |
| 00 47 | 0000 000a | Step 8 Mute | (0 - 1) |
| 00 48 | 0000 000a | Step 9 Mute | (0 - 1) |
| 00 49 | 0000 000a | Step 10 Mute | (0 - 1) |
| 00 4A | 0000 000a | Step 11 Mute | (0 - 1) |
| 00 4B | 0000 000a | Step 12 Mute | (0 - 1) |
| 00 4C | 0000 000a | Step 13 Mute | (0 - 1) |
| 00 4D | 0000 000a | Step 14 Mute | (0 - 1) |
| 00 4E | 0000 000a | Step 15 Mute | (0 - 1) |
| 00 4F | 0000 000a | Step 16 Mute | (0 - 1) |
| 00 00 00 50 | Total Size | | |

MIDI Control Change Table

VariOS 303

| MIDI Control# | MIDI Controller Name | Parameter Name | Range |
|---------------|----------------------------------|-------------------|--------|
| 0 | Bank Select MSB | | |
| 1 | Modulation | (Modulation) | |
| 2 | Breath Type | Tuning | 1–127 |
| 3 | | Cutoff Freq | 0–127 |
| 4 | Foot Type | Resonance | 0–127 |
| 5 | Portament Time | | |
| 6 | Data Entry MSB | | |
| 7 | Volume | (Part Volume) | |
| 8 | Balance | Env Mod | 0–127 |
| 9 | | Decay | 0–127 |
| 10 | Pan | | |
| 11 | Expression | (Part Expression) | |
| 12 | | Accent | 0–127 |
| 13 | | Volume | 0–127 |
| 14 | | Patch Tempo | 10–125 |
| 15 | | Pattern Status | 0–2 |
| 16 | General Purpose Controller 1 MSB | Pattern Select | 0–5 |
| 17 | General Purpose Controller 2 MSB | Pattern Shift | 0–1 |
| 18 | General Purpose Controller 3 MSB | Waveform | 0–1 |
| 19 | General Purpose Controller 4 MSB | Comp Sw | 0–1 |
| 20 | | Comp Ratio | 0–3 |
| 21 | | Comp Threshold | 0–60 |
| 22 | | Comp Attack | 0–127 |
| 23 | | Comp Release | 0–127 |
| 24 | | Comp Gain | 0–72 |
| 25 | | OD/DS Sw | 0–1 |
| 26 | | Drive Mode | 0–1 |
| 27 | | Drive | 0–127 |
| 28 | | EQ Low Freq | 0–19 |
| 29 | | EQ Low Gain | 0–30 |
| 30 | | EQ Mid Freq | 0–26 |
| 31 | | EQ Mid Gain | 0–30 |
| 32 | Bank Select LSB | | |
| 33 | Modulation LSB | EQ Hi Freq | 0–8 |
| 34 | Breath Type LSB | EQ Hi Gain | 0–30 |
| 35 | | Chorus Mode | 0–1 |
| 36 | Foot Type LSB | Chorus Rate | 0–111 |
| 37 | Portamento Time LSB | Chorus MOD Level | 0–127 |
| 38 | Data Entry LSB | | |
| 39 | Volume LSB | Chorus Depth | 0–127 |
| 40 | Balance LSB | Chorus Feedback | 0–98 |
| 41 | | Delay Switch | 0–1 |
| 42 | Pan LSB | Delay Time | 0–105 |
| 43 | Expression LSB | Delay Level | 0–127 |
| 44 | | Delay Balance | 0–100 |
| 45 | | Delay Feedback | 0–98 |
| 46 | | | |
| 47 | | | |
| 48 | General Purpose Controller 1 LSB | | |
| 49 | General Purpose Controller 2 LSB | | |
| 50 | General Purpose Controller 3 LSB | | |
| 51 | General Purpose Controller 4 LSB | | |
| 52 | | | |
| 53 | | | |
| 54 | | | |
| 55 | | | |
| 56 | | | |
| 57 | | | |
| 58 | | | |
| 59 | | | |

MIDI Control Change Table

| MIDI Control# | MIDI Controller Name | Parameter Name | Range |
|---------------|------------------------------|--------------------------|-------|
| 60 | | | |
| 61 | | | |
| 62 | | | |
| 63 | | | |
| 64 | Hold 1 | (Hold) | |
| 65 | Portamento | | |
| 66 | Sostenuto | (Sostenuto) | |
| 67 | Soft | | |
| 68 | Legato Foot Switch | | |
| 69 | Hold 2 | | |
| 70 | Sound Controller1 | | |
| 71 | Sound Controller2 | | |
| 72 | Sound Controller3 | | |
| 73 | Sound Controller4 | | |
| 74 | Sound Controller5 | | |
| 75 | Sound Controller6 | | |
| 76 | Sound Controller7 | | |
| 77 | Sound Controller8 | | |
| 78 | Sound Controller9 | | |
| 79 | Sound Controller10 | | |
| 80 | General Purpose Controller 5 | | |
| 81 | General Purpose Controller 6 | | |
| 82 | General Purpose Controller 7 | | |
| 83 | General Purpose Controller 8 | | |
| 84 | Portamento Control | | |
| 85 | | | |
| 86 | | | |
| 87 | | | |
| 88 | | | |
| 89 | | | |
| 90 | | | |
| 91 | Reverb | (Part Delay Send Level) | |
| 92 | Tremolo | | |
| 93 | Chorus | (Part Chorus Send Level) | |
| 94 | Seleste | | |
| 95 | Phaser | | |
| 96 | Data Increment | | |
| 97 | Data Decrement | | |
| 98 | NRPN LSB | | |
| 99 | NRPN MSB | | |
| 100 | RPN LSB | | |
| 101 | RPN MSB | | |
| 102 | | | |
| 103 | | | |
| 104 | | | |
| 105 | | | |
| 106 | | | |
| 107 | | | |
| 108 | | | |
| 109 | | | |
| 110 | | | |
| 111 | | | |
| 112 | | | |
| 113 | | | |
| 114 | | | |
| 115 | | | |
| 116 | | | |
| 117 | | | |
| 118 | | | |
| 119 | | | |

* Parameters shown in parentheses () cannot be edited using VariOS 303 Controller.